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Western Reserve University

MEDICAL COLLEGE CATALOGUE

1903 - 1904

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[WITH ANNOUNCEMENTS FOR 1904-1905]

CLEVELAND, OHIO

Issued Bimonthly by
WESTERN RESERVE UNIVERSITY
2430 Euclid Ave

[Entered at the Post-Office at Cleveland, Ohio, as second-class matter]

NOTICE.

The Medical Course in this school comprises four years of eight months each.

The instructors in the departments of Anatomy, Physiology, Histology, Comparative Anatomy and Embryology, Bacteriology, Pharmacology, Pathology and Clinical Microscopy, devote their entire time to teaching and original research work.

The requirements for admission to the first year of the school are the completion of the Junior year in a recognized literary college.

Graduates of good literary colleges, who have completed an amount of work equal to that of the first year of the Medical Course, will be admitted to second year standing in the Medical School.

The clinical opportunities comprise all the material of Lakeside, Charity and St. Alexis Hospitals, the Maternity, Children's Home, and Dispensary at Charity Hospital, and the Dispensary of Western Reserve University and Lakeside Hospital, throughout the year, and the City Hospital to January 1st.

Of a class of twenty-six men graduating in 1903, seventeen received hospital appointments.

A laboratory has been built and equipped at a cost of \$15,000, and the Chair endowed, for Clinical Microscopy in relation to Clinical Medicine and Surgery, in which students are given practical instruction in the examination of all secretions, blood, tumors, stomach contents, etc.

At the opening of the present college year an endowment fund of \$100,000 was given to the college by Mr. H. M. Hanna for the purpose of establishing the "Henry Wilson Payne Department of Anatomy." This generous gift enables the school to materially improve the character of the clinical teaching as to thoroughness and efficiency during the third and fourth years of the course.

The expenses in this school, as compared with certain other schools, are such that a student may save, in a four years' course, nearly enough to give him a year's training abroad.

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1899/1900



Western Reserve University.

The

Medical College.

1899-1900



Cleveland, O.

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FIFTY-SIXTH
ANNUAL CATALOGUE
OF THE

Medical College

OF

Western Reserve University

CLEVELAND, OHIO.

1899=1900.

CALENDAR.

1899. January 4th..... *Exercises resumed.*
May 22d *Final examinations begin.*
June 14th..... *Alumni meeting.*
June 15th *Commencement day.*
October 2d..... *Examinations for admission.*
October 4th..... *Session opens.*
December 22d *Holiday recess begins.*
1900. January 3d..... *Exercises resumed.*
May 21st *Final examinations begin.*
June 14th..... *Commencement day.*

CLEVELAND, O.:
THE W. M. BAYNE PRINTING COMPANY.
1899.

THE MEDICAL COLLEGE OF WESTERN RESERVE UNIVERSITY, CLEVELAND.

This college was established in 1843, and has held annual sessions from that time.

The course of study for the degree of Doctor of Medicine, is of four years' duration. The school year or session continues eight months. Theoretical and applied branches of study are arranged with reference to their bearing upon and preparation for each other, and the effect of the whole course. Instruction is given by lectures, recitations, laboratory work and clinical demonstrations.

An endowment of the chairs of Anatomy, Physiology, Chemistry, Pathology, and Pharmacology permits the employment of teachers who devote all of their time to teaching in this college.

The buildings are modern in plan, construction and equipment.

The year begins on Wednesday, October 4th, 1899, and ends on Thursday, June 15th, 1900. There is a holiday recess beginning December 23d and ending January 2d. Exercises are omitted on all legal holidays.

In the subjects of Anatomy, Chemistry, Physiology, Histology, Bacteriology, Pathological Anatomy and Pharmacology, laboratory work accompanies didactic lectures and is required of every student.

NOTE—*Beginning with the academic year of 1901-2, the requirements for admission will consist of such knowledge and training as are embodied in the first three years of a college course.*

THE MEDICAL COLLEGE.

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CLINICAL ASSISTANTS.

FRANK S. CLARK, A. M., M. D., *Assistant in Obstetrics and Pediatrics, Lakeside Hospital Dispensary.*

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ROGER G. PERKINS, A. M., M. D., *Assistant in Pathology at Lakeside Hospital.*

ANDREW FLOWER, *Curator and Prosector.*

Committee of Administration, DRs. POWELL, SAWYER, LOWMAN.

REQUIREMENTS FOR ADMISSION. SESSION 1899-1900.

All candidates for admission (with the exceptions mentioned below) must pass an examination in the following subjects:

COMPULSORY SUBJECTS.

1. ENGLISH. Writing a passage from dictation. Correcting specimens of bad English. An essay of not less than three hundred words on an important event in the history of the United States, the subject to be announced at the time of examination.

2. LATIN. CÆSAR, The Gallic War, Books I, II and III. Latin Grammar. Translation of sentences from English into Latin.

3. MATHEMATICS. Arithmetic (including the metric system). Algebra to quadratic equations.

OPTIONAL SUBJECTS. (Two of these are required)

1. GEOMETRY. The equivalent of Euclid, Books I, II and III, with easy deductions.

2. PHYSICS. Daniel's or Gage's Elementary Physics or an equivalent.

3. GREEK. Xenophon, Anabasis, Books I and II. Greek Grammar.

4. FRENCH. Translation at sight of ordinary French prose. French Grammar.

5. GERMAN. Translation at sight of easy passages of German prose. German Grammar.

The next examination will be held Monday, October 2nd, 1899, at 1:30 P. M. in the College Building.

The admission committee will examine diplomas or certificates on which exemption from examination is claimed, on Friday and Saturday, Sept. 29th and 30th, 1899, beginning at 9:30 A. M.

It is desirable that applicants for admission should attend personally at the college on either of these days, bringing their certificates with them. If this cannot be done, the certificates should be forwarded to the Registrar.

Students in the Senior class of Adelbert College are permitted to take elective courses in the Medical College. Such electives are counted toward the academic degree, and in this way such students can save one year in their medical course.

Students from high schools, academies or colleges recognized by the Committee on admission as in good standing, will be accepted without examination on presenting certificates or diplomas showing that all of the required subjects have been mastered. Candidates deficient in one subject only may be admitted with a condition in that subject, which must be removed before the beginning of the second year.

ADMISSION TO ADVANCED STANDING.

Application for advanced standing in the course must be accompanied with satisfactory proof that the applicant has attended courses equivalent to the requirements of this college for the class to which admission is sought, and passed examinations in all branches which the class has taken.

Graduates in Medicine, and students who desire to take special courses without graduation, will be admitted without examination. Such special courses will not count in any way for the degree of Doctor of Medicine in this College.

DEPARTMENTS AND METHODS OF INSTRUCTION.

PHYSICS.

This course is given by Professor Frank P. Whitman of Adelbert College, and occupies one hour weekly during the first half of the first year. Instruction is given by lectures and recitations upon the most important topics of general physics.

BIOLOGY.

As arranged for the present year instruction in Biology will be based upon twenty lectures by Professor F. H. Herrick of Adelbert College, on the principles of Biology. These will be followed by a carefully arranged laboratory course, the details of which will be announced later.

Lectures for current year at Physical Laboratory on Mondays, at 1:45 P. M., beginning October 16th.

CHEMISTRY.

This course is taken in the first year. The first half year's work consists of six hours of recitation and eight hours of laboratory work weekly. In the second half year organic chemistry will be taken, with four hours in lectures and recitations, and eight hours in the laboratory, weekly. The laboratory work covers a systematic study of the physical and chemical properties of the elements, and the methods of preparation, with qualitative analysis. The second half year's lectures treat of organic chemistry, including such special subjects as urinary analysis, chemistry of foods, toxicology and the quantitative methods relative to medical and physiological chemistry. The laboratory work of the second half year is devoted to medical and physiological chemistry, including the general actions of the various typical classes of compounds and the methods for their identification and separation. Quantitative methods and general urinary analysis consume the last weeks of the year.

ANATOMY.

The course in Anatomy consists of lectures upon descriptive and applied Anatomy, together with demonstrations, recitations and quizzes. In order to facilitate the work in Osteology, students of the first year are provided with separate portions of the skeleton, which they are permitted to take to their rooms for study. Three hours in recitations and eight hours for dissecting, in suitable periods weekly, are given to Anatomy during the first year. Students are required to dissect all parts of the cadaver at least once. For demonstrations upon the cadaver and anatomical preparations the second year class is divided into a number of small sections, whose meetings take the form of anatomical conferences rather than of formal demonstrations. Each individual student thus has an excellent opportunity of becoming familiar with the various parts of the body, and of receiving direct personal instruction. Four hours a week are given to lectures and recitations in the second year and ten hours a week to dissecting. In the third year instruction is given by lectures and recitations in Applied Anatomy.

MATERIA MEDICA AND THERAPEUTICS.

The instruction in this department is designed to provide the student with a thorough practical knowledge of remedies of all

kinds, their action and uses. It is carried on by recitations, lectures, quizzes and laboratory practice. The first year class will receive one hour a week in *Materia Medica* throughout the year, and one hour a week in *Pharmacy* for the second half of the year. Special stress is laid on the preparation and the combining of medicines, in order to more fully demonstrate physical, chemical and physiological incompatibilities. There is provided a very complete cabinet of *materia medica*, including crude drugs, active principles and finished products, which is open to the student without charge, thus enabling him to familiarize himself with the physical properties as well as with the action of medicines. The second and third year classes receive thorough and systematic instruction in *Therapeutics* and *Pharmacology*, including exercises monthly in prescription writing, together with lectures on *Massage*, *Dietetics*, *Regimen* and *Climatology*.

PHARMACOLOGY.

Forty-five hours of lectures and recitations, and forty-five hours of laboratory work in the third year.

The lectures and recitations are designed to present the action of drugs from an experimental standpoint, and to form an introduction to practical therapeutics. In the first part of the course, the action of the typical drugs is considered; in the second part, physiological and pathological processes as modified by drugs. The laboratory work consists for the most part, of experiments on animals, and is designed to illustrate the subjects treated in the lectures.

Practical and theoretical instruction is also given in incompatibilities.

PHARMACY.

Fifteen hours of lectures, recitations and laboratory work in second half of first year.

The course covers: Different methods of extracting active principles, with demonstrations on typical drugs; ordinary pharmaceutical manipulations; pharmacopœal preparations; strength, menstrua and methods of preparation; pharmaceutical assaying, illustrated on opium; demonstrations and laboratory work in the compounding of medicines.

PHYSIOLOGY.

Three lectures, one conference or quiz and seven hours laboratory work a week throughout the second year.

HISTOLOGY.

Working in this course eight hours a week for the first half of the first year, each student stains and mounts for himself more than 130 sections representing all the important tissues and organs of the body. Special courses on practical Histology can be arranged for in the summer vacation.

PATHOLOGY.

Instruction in this department is given by lectures, practical laboratory work and demonstrations of fresh and prepared specimens. The most important feature of this course is the practical laboratory work done by each student.

Bacteriology. Practical laboratory work in this course is given three half days a week from February 15th to the end of the first year. The subject is elucidated by informal lectures, demonstrations and experiments on animals, as occasion requires. The student, after having prepared the various media required, is instructed in the principles of disinfection and sterilization, the bacteriological examination of air, water and soil, and the methods of cultivating, staining and studying bacteria. The technique being mastered, the pathogenic bacteria, mould fungi and yeasts are studied. Altogether from thirty to thirty-five different bacteria are studied by each student. Students are trained in the employment of bacteriological methods in medical and surgical diagnosis; and those who prove themselves capable are permitted to pursue investigations along special lines on subjects assigned them by the professor in charge.

Pathological Histology. The course in Pathological Histology comprises nine hours a week of laboratory work for the first five months of the second year. The course begins with the study of the various forms of tissue degeneration and the various forms of necrosis. This is followed by the study of inflammation in the frog's mesentery and in sections of hardened tissue, showing all the various forms of inflammatory process. The infectious granulomata are taken up, and the forms and special characters of the reaction of the tissues to the specific organisms of these diseases are demonstrated. The study of the various pathological processes is based upon their aetiology, and in addition to human tissues, the material from the experiments on animals in the bacteriological course is used for this

purpose. The effect of bacterial and other toxins upon the tissues is taught in the same manner. Based upon the above as a groundwork, the pathological histology of the various organs and systems is studied. The use of fresh frozen sections of material derived from autopsies, the operating room and animal experiments, forms an important feature of the course. Each student receives and is required to stain, mount, carefully study and draw from two hundred and fifty to three hundred sections.

Demonstrations of Gross Pathological Anatomy. Demonstrations are made to second and third year students of the large amount of fresh material derived from autopsies and from the surgical and gynecological clinics. Students are required to handle and describe specimens and to make diagnosis from the gross appearances, the macroscopical diagnosis of tumors being an important feature. The hospital connections of the laboratory are such that students can be trained in making autopsies and in writing protocols of the lesions found.

General Pathology. Two lectures a week are given to the second year class. In these lectures the various infectious diseases, immunity, the degeneration and regeneration of tissue, the aetiology of tumors, and the special pathology of the various organs and systems are treated.

Advanced and Special Work. A special room, well lighted and equipped, is provided for physicians and advanced students who wish to undertake special work in Pathological Histology, Experimental Pathology and Bacteriology.

HYGIENE.

One lecture a week is given to the second year class. The course comprises a consideration of heredity; normal development of races; climatic and meteorological influences; essentials to life and health; effects of habits of life; symmetrical development of individuals; family and community sanitation.

MINOR SURGERY.

Demonstration in bandaging and the applications of apparatus, and in dressing fractures are given regularly, one lecture or exercise a week through the second year. The students are divided into classes and are required to do the work themselves. A quiz is also conducted upon the lectures and clinics in surgery.

OBSTETRICS.

Instruction in this course begins with the third and continues through the fourth year, two lectures a week throughout. The plan includes didactic lectures, quizzes, practical demonstrations and bedside instruction. Lectures are illustrated freely by charts, diagrams, models and operations upon the mankin. Students are required to become familiar with the use of the various obstetric instruments. The Senior Class is divided into small sections and given practical work outside of schedule hours.

PHYSICAL DIAGNOSIS

Is taught one hour a week in the third and two hours a week in the fourth year, in connection with Medicine. During the third year the student is taught to recognize and elicit all of the physical phenomena of the circulatory and respiratory organs and abdominal viscera that are demonstrable by inspection, palpation and auscultation. Pathological cases are shown only as they are found necessary for the demonstration and explanation of physiological signs. At the end of the year each student is required to demonstrate the normal physical signs of the thorax and abdomen. During the fourth year physical diagnosis is taught from pathological cases. The students are required to demonstrate at every exercise, and are also given opportunity to practice in the dispensary and hospital wards. The final examination in this course is a practical one. Each student is required to examine a patient, describe the physical signs and eliminative physical diagnosis.

THE THEORY AND PRACTICE OF MEDICINE.

The Theory of Medicine is taught by recitations, quizzes, demonstrations and lectures. The practice of Medicine is demonstrated clinically in the hospitals and dispensaries. Six hours a week are given to this course (including theory, practice and clinics) throughout the third and fourth years. Recitations or lectures are held three times a week, and students are expected to recite on lessons or subjects previously announced. To exemplify the lesson, cases from the college clinic are frequently used at the end of the hour. The aim is to combine clinical and didactic exercises. Lectures are given at varying periods, as a resume of what has already been studied. In the the clinics cases are exhibited which students are

expected to examine and make diagnoses. The hour is sometimes passed in a free discussion of the case or cases presented, in the form of a conference, or a lecture given with practical demonstrations of particular signs to individual students, according as one exercise or the other may seem the more profitable. As much as possible the student is brought in contact with the patient, and is expected to put into practice what he has learned.

SURGERY.

Surgery is taught by means of theoretical lectures and clinical demonstrations, and occupies eight hours a week during the third and fourth years. In the theoretical lectures there is placed before the students a picture of the various physiological and pathological problems peculiar to surgery. The diseases peculiar to the different organs of the body, and the regions of special surgical importance are described and discussed, and an effort is made to render this instruction systematic, using in connection with it the surgical cases presented in the amphitheatre. For this purpose are utilized all of the surgical cases in the Lakeside Hospital, Charity Hospital and the Dispensaries connected with these two institutions, and in addition to this, the material of the City Hospital is used during four months of the winter. The students are also invited, as nearly in turn as possible, to see a considerable number of private operations. In the clinics, which are held at Lakeside and Charity Hospitals, the students are permitted to examine cases and are taught the methods of diagnosis. They are also assigned in turn to service in the Dispensaries, so that they see a large number of surgical cases, not only of the graver sort, which remain in the hospital, but also others of minor surgery.

In addition to the work in the Dispensary, practical instruction is given in minor surgery and bandaging. The methods of reducing dislocations are demonstrated and the members of the class are carefully supervised in the application of splints and apparatus in fractures and other surgical effections, as well as in the application of plaster and silicate of potash bandages and jackets.

The Children's Wards at the Lakeside and City Hospitals afford ample material for the teaching of orthopedic surgery.

A course of operations on the cadaver is given to the Senior Class, in which the typical operations are performed, and opportu-

ity is afforded to each student to make a number of operations himself upon the cadaver.

The work of the fourth year also contains special laboratory instruction in surgical pathology and recitations in general surgery. Students will be assigned to examine patients and make written reports of diagnosis and treatment, reading and defending the same before the class. There will also be special instruction in the diagnosis and treatment of surgical affections, the material from the Dispensary being utilized for this purpose.

GYNÆCOLOGY

Is taught by didactic lectures, one hour a week during the third year, and clinically, four hours a week through the fourth year. The cases admitted to the wards of Lakeside and Charity Hospitals for laceration of the perinaeum and for vaginal, vesical, uterine, tubal and ovarian disease, will be used either at the regular clinics in the amphitheatre or at the bedside. Instruction will be given in the wards upon the management of such cases during the period immediately following operation and during the period of convalescence. The privilege of attending private operations will be extended to a limited number of the Senior Class in turn. As a rule each student will have an opportunity of performing some minor operations. A course in Gynæcological Pathology will also be given. The work in the dispensaries at Lakeside and Charity Hospitals will include history taking and the ordinary methods of examination—the diagnosis and treatment of cases. These classes are held four times a week at the hospitals and each student, in his turn, will have an opportunity of receiving instruction in this work. Students in turn will be permitted to examine patients, and suitable cases will be operated upon before the class.

DISEASES OF CHILDREN.

The instruction in this course is given one hour a week during the third year. It consists of a clinical lecture with recitations on the subject touched on the previous week. The illustrative material for the lecture is drawn from the Lakeside Hospital Dispensary and Children's Ward. From these sources are obtained plentiful illustrations of congenital and acquired deformities and diseases.

DISEASES OF THE NOSE, THROAT AND EAR.

Instruction on these diseases is given during the third year. One hour each week is devoted to a clinical lecture. The class is divided into sections and assigned regular work in the large clinic of this department and the students are required to personally examine and treat the various cases.

GENITO-URINARY DISEASES.

A preliminary course of fifteen didactic lectures, one each week, is given during the first half of the third year, with clinical instruction, one hour each week, during the first half of the third year. This branch is supplied with sufficient material for each student to examine the various diseases of the genito-urinary tract personally.

DERMATOLOGY AND SYPHILOLOGY.

Instruction is given in these branches to the fourth year class and consists chiefly of clinical work. In the clinics the cases are classified to show the different varieties and phases each disease may assume. In this way the common disease of the skin, as well as many of the more rare forms are studied, and the progress under treatment noted. Various pathological conditions are demonstrated microscopically, and by the aid of colored plates, wax models and charts. During the year each student is called upon to make diagnoses and outline courses of treatment under the immediate supervision of the instructor. The clinical material is abundant.

OPHTHALMOLOGY.

The method of instruction is largely clinical with didactic teaching interspersed. It is given to the Senior Class. The class is divided into sections, each one being assigned in rotation to cases for examination in the dark room. Each student will be given cases for special study, and is expected to make a report upon them before the class, and will be subject to quizzing by members of the class and the instructor. The aim is to teach the diagnosis and methods of treatment of the external diseases of the eye, and to give a working knowledge of the uses of the ophthalmoscope. The eye department has separate wards in Lakeside Hospital in which students have opportunities for seeing work at the bedside. The class will be divided into sections for instruction with the ophthalmoscope, and for

daily work in the dispensary rooms during the year. This department has abundant facilities, appliances and material. A large "dark room" with ten lights, a Javal-Schiötz Ophthalmometer, a perimeter, test cases and ophthalmoscope, for practical ophthalmology are provided.

NEUROLOGY.

Instruction in this branch of medicine is clinical and occupies one hour a week throughout the fourth year. In connection with the cases shown, the class is instructed in the use of the different forms of electric current for diagnosis and treatment, and in other diagnostic methods.

PREVENTIVE MEDICINE

Is taught by lectures and conferences, one hour a week during the fourth year. The course includes the pathology, natural history and methods of limiting the spread of infectious diseases; the duties and powers of public officers of health; value and methods of keeping vital statistics; the relation and duties of the physician to the public in matters relating to the public health, etc.

MEDICAL JURISPRUDENCE

Is taught by lectures and quizzes during the first half of the fourth year, one hour each week. It includes instruction as to what constitutes malpractice, the value of evidence, the duties of the physician in criminal cases, and the rights of the physician for himself and those under his care, etc.

TEXT BOOKS.

Chemistry—Witthaus, Bartley, Prescott and Johnson.

Anatomy—Gray, Morris.

Histology—Stöhr's Histology, Schäfer's Histology.

Bacteriology—Abbot, Sternberg.

Materia Medica—U. S. or National Dispensatory, Cutbreth, White.

Biology—General Biology, Sedgwick & Wilson, General Principles of Zoology, Hertwig and Field.

Physics—Daniel's or Carhart's University Physics.

Physiology—Stewart's Manual; for reference, Schäfer's Physiology.

Pathology—Ziegler, Orth's Diagnostics.

Therapeutics—Wood, Brunton, Bartholow, Shoemaker, Butler, Schmiedeberg.

Medicine—Wood and Fitz, Strumpell. Osler.

Surgery—American Text-book of Surgery, Koenig's Surgery, Warren's Surgical Pathology.

Gynecology—American Text-book of Gynecology, Clinical Gynecology (Keaton & Coe), Kelly's Operative Gynecology, Diseases of Women (Dudley) Books of Reference, Pozzi, Fritsch, Hart & Barbour, Aseptic Surgical Technique (Robb).

Obstetrics—Lusk, Reynolds, Davis, Playfair.

Dermatology—Crocker, Hardway, Jackson, Morrow's System of Dermatology.

Neurology—Gowers, Dana, Herter, Dercum.

Ophthalmology—Norris & Oliver, DeSchweinitz, Fuchs, Noyes.

Nose, Ear and Throat—McBride, Bishop, Burnett, Bosworth, Politzer, Buck.

Hygiene and Preventive Medicine—Stevenson & Murphy, Egbert.

Genito-Urinary—Taylor, Bangs & Hardway, Morrow's System of Genito-Urinary Diseases, Morris.

Physical Diagnosis—Vierod's Medical Diagnosis.

Diseases of Children—Holt's Infancy and Childhood, Jacobi's Therapeutics of Infancy, Ashby & Wright.

LABORATORIES.

PHYSICS.—The facilities for the study of physics are fully provided in the new laboratory building. This is a three-story building, containing large lecture and laboratory room for class exercises and smaller apartments for individual work. The department is equipped with a large variety of modern apparatus bearing upon the courses offered. Especial attention has been paid to heating, lighting and ventilation.

BIOLOGY—A new and commodious laboratory especially designed for the study of the biological sciences, particularly for the work in anatomy, zoology, embryology, botany and general physiology was begun in October, 1898, and will be ready for use early in 1899. The building is solidly

constructed of stone, and consists of three stories and two small wings. When completed and equipped according to the original plans it will offer the fullest opportunities for instruction and research. It will contain a large elementary laboratory and several smaller laboratories, a large lecture hall, an extensive teaching collection, illustrating the life histories of organism, a complete photographic laboratory for the preparation of photographic charts, slides and other illustration material, a mechanical workshop for the construction of apparatus, salt and fresh water aquaria, vivaria, and a conservatory for aquatic and land plants. The building is heated, lighted and ventilated according to the best available methods.

The laboratories for biology and physics are situated on the grounds of Adelbert College of Western Reserve University.

CHEMISTRY.—A new chemical laboratory building with over 6,500 square feet of floor space, has been erected to the south of and connected with the main college building. The laboratories are thoroughly equipped for all the details of the course, and each student has a separate desk assigned him with a general supply of apparatus. Extra and special apparatus is furnished upon requisition. A special laboratory has been furnished for the work of advanced students and every effort made to make it as complete as possible, and to provide facilities for original and special work.

ANATOMY.—The dissecting room is well lighted with electricity, heated and ventilated and provided with modern appliances. The anatomical rooms have about 3,000 square feet of floor space. Anatomical material is preserved at all seasons of the year.

BACTERIOLOGY.—The work in bacteriology is carried on in the pathological laboratory. Students are required to provide their own material for drawings. Microscopes, culture media and animals are provided without charge, and material for staining and mounting specimens, to be retained by students, at cost. The laboratory has the benefit of excellent lighting with space for individual work.

PHARMACOLOGY.—There is a large, well-lighted laboratory, 30 by 70 feet, devoted exclusively to this subject. Each student is provided with a separate outfit, with ample space for individual work. Apparatus and material are furnished without extra charge. The laboratory is open for advanced work in this department.

PHYSIOLOGY AND HISTOLOGY. The teaching laboratories comprise four well-lighted rooms with an aggregate floor space of more than five thousand square feet. The rooms for histology and experimental physiology are each 50 by 30 feet, the room for chemical physiology measures 35 by 30 feet, and the lecture room, devoted exclusively to physiology, is capable of accommodating one hundred and forty students. The equipment for teaching practical physiology permits more than forty students to work in a class at one time, some in the chemical and some in the experimental room. Several separate rooms are available for research.

PATHOLOGY.—The pathological laboratory occupies the entire west third floor, 30 by 80 feet, and has in addition a special room for research work, a museum and a professor's room. The teaching laboratory room, 30 by 75 feet, is on the east fourth floor, and affords each student separate locker and ample table space. Apparatus, instruments and teaching materials are provided without extra charge.

HOSPITALS.

LAKESIDE HOSPITAL.

The new Lakeside Hospital occupies a plot of ground 400 feet long by 380 feet deep, on the bank overlooking Lake Erie, about five minutes' walk from the college building. It affords accommodation for 250 patients. The staff is composed of members of the faculty of this college. The hospital has an amphitheatre seating about two hundred students for the surgical classes, and a smaller one with a seating capacity of over one hundred for the medical classes. On the third floor of the dispensary building are two lecture

rooms, each capable of seating 50 to 75 students. There are nine resident assistants for the departments of surgery, gynecology, medicine, ophthalmology, children's diseases, etc. These positions are open only to the students of this college, and afford great advantages.

ST. VINCENT'S (CHARITY) HOSPITAL.

This is one of the oldest and best known institutions in the city and state. It has between 75 and 100 beds. The staff is selected by the faculty, and the clinical material of the hospital is utilized for instruction in this college. There are four hospital positions open each year to the students of this college only.

CITY HOSPITAL.

This institution is under municipal control. It accommodates 150 to 175 patients continually in the adult department and has a new building for children with 250 to 275 beds. From September to January regular clinics in medicine, gynecology, surgery, neurology and cutaneous and venereal diseases are given here by members of this faculty. The insane department of this hospital affords material for clinical instruction in mental diseases. Frequent autopsies are held and abundant material for pathological demonstrations obtained. The resident staff is selected by competitive examination, and the students of this college are eligible.

HOME OF MATERNITY.

This is a department of Charity Hospital, with a separate building, devoted to the care of women during their confinement and of mothers and children. From 100 to 150 cases are received annually, the members of the Senior Class being assigned to them in rotation, so that each student sees from two to five cases of labor under the supervision of the Professor of Obstetrics, who has charge of the department with its children's ward.

The clinical facilities of this college comprise, throughout the course, the 250 beds of Lakeside Hospital, the 75 to 100 beds of Charity Hospital, the College Dispensaries, the Maternity and Children's Home; and the 300 beds of the

City Hospital during the first four months of each college year. From 25 to 30 resident positions are open to the graduates of the college in the hospitals of the city.

LAKESIDE HOSPITAL SERVICE.

STAFF.

Medicine—DR. H. H. POWELL, DR. J. H. LOWMAN, DR. H. S. UPSON.

Surgery—DR. D. P. ALLEN, DR. W. H. NEVISON, Alternate.

Diseases of Children—DR. E. F. CUSHING.

Ophthalmology—DR. B. L. MILLIKIN.

Gynecology—DR. H. ROBB.

Dermatology—DR. W. T. CORLETT.

Pathology—DR. W. T. HOWARD, JR.

CHARITY HOSPITAL SERVICE.

STAFF.

Consulting Physicians—DR. H. J. HERRICK, DR. G. C. ASHMUN,
DR. B. W. HOLLIDAY, DR. J. H. LOWMAN.

Consulting Surgeons—DR. G. C. E. WEBER, DR. D. P. ALLEN.

Consulting Ophthalmologist—DR. B. L. MILLIKIN.

Consulting Dermatologist—DR. W. T. CORLETT.

Visiting Physicians—DR. H. J. LEE, DR. J. E. COOK, DR. J. P. SAWYER,
DR. T. A. BURKE.

Visiting Surgeons—DR. F. E. BUNTS, DR. C. A. HAMANN.

Visiting Gynecologist—DR. W. H. HUMISTON.

Visiting Ophthalmologist—DR. W. E. BRUNER.

Pathologist—DR. W. T. HOWARD, JR.

CITY HOSPITAL SERVICE.

STAFF.

Medicine—DR. J. E. DARBY, DR. C. F. HOOVER, DR. C. A. HAMANN,
DR. J. H. LOWMAN.

Surgery—DR. D. P. ALLEN, DR. F. E. BUNTS.

Neurology—DR. H. L. SPENCE.

Gynecology—DR. W. H. HUMISTON.

Dermatology—DR. W. T. CORLETT.

Pathology—DR. W. T. HOWARD, JR.

Ophthalmology—DR. W. E. BRUNER.

HOME OF MATERNITY.

Obstetrics—DR. H. H. POWELL.

DISPENSARIES.

Free Dispensaries are maintained at Lakeside and Charity Hospitals with daily service except Sundays. These college dispensaries were established by the Hurlbut and Huntington Funds, and afford treatment to more than eight thousand cases annually.

LAKESIDE HOSPITAL DISPENSARY SERVICE.

Medicine—DR. J. H. LOWMAN, Director.

DR. C. L. HOOVER, Physician in Charge.

Surgery—DR. D. P. ALLEN, Director.

DR. W. H. NEVISON, Surgeon in Charge.

DR. H. L. BECKER, Assistant.

Obstetrics—DR. H. H. POWELL, Director.

DR. F. S. CLARK, Obstetrician in Charge.

Diseases of Children—DR. E. F. CUSHING, Director.

DR. J. J. THOMAS, Physician in Charge.

Gynecology—DR. H. ROBB, Director.

DR. WALTER R. LINCOLN, Gynecologist in Charge.

Nervous Diseases—DR. H. S. UPSON, Director.

DR. H. L. SPENCE, Neurologist in Charge.

Ophthalmology—DR. B. L. MILLIKIN, Director.

DR. W. E. BRUNER, Ophthalmologist in Charge.

DR. C. C. STUART, Assistant.

Dermatology and Genito-Urinary Diseases—DR. W. T. CORLETT, Director in Charge.

Diseases of Nose, Ear and Throat—DRS. J. M. INGERSOLL and WILLIAM R. LINCOLN, in Charge.

CHARITY HOSPITAL DISPENSARY SERVICE.

Medicine—DR. J. P. SAWYER, Director.

DR. N. O. PAULIN, Physician in Charge.

Surgery—DR. F. E. BUNTS, Director.

DR. D. K. WHITE, DR. J. J. THOMAS, in Charge.

Gynecology—DR. W. H. HUMISTON, Director.

DR. H. T. CLAPP, DR. O. T. THOMAS, in Charge.

HOME OF MATERNITY SERVICE.

Obstetrics—DR. H. H. POWELL, Director.

DR. J. J. THOMAS, Obstetrician in Charge.

COURSES OF STUDY.

FIRST YEAR.

CHEMISTRY, *First Half Year*.—

Recitations six hours a week.

Laboratory work, eight hours a week.

CHEMISTRY, *Second Half Year*.—

Lectures and Recitations, four hours a week

Laboratory work, eight hours a week.

ANATOMY.—Recitations, three hours a week.

Dissecting, eight hours a week.

HISTOLOGY.—Lecture, one hour a week. Laboratory seven hours a week, first half year.

BACTERIOLOGY.—Nine hours a week, after March 1st.

MATERIA MEDICA.—One hour a week.

PHARMACY.—One hour a week, second half year.

PHYSICS.—Lectures one hour a week, first half year, at Adelbert College.

BIOLOGY.—One hour a week, first half year, at Adelbert College.

SECOND YEAR.

ANATOMY.—Lectures, four hours a week.

Dissecting, ten hours a week.

APPLIED ANATOMY.—Lecture, one hour a week.

PHYSIOLOGY.—Lectures, four hours a week.

Laboratory work, seven hours a week.

GENERAL PATHOLOGY.—Lectures, two hours a week.

Quiz, one hour a week.

PATHOLOGICAL HISTOLOGY.—Laboratory work, nine hours a week to March 1st.

THERAPEUTICS.—Lectures, two hours a week.

HYGIENE.—Lecture, one hour a week.

MINOR SURGERY.—Lecture or exercise, one hour a week.

CLINICS.—Attendance on Medical and Surgical Clinics during last half year, as time permits.

THIRD YEAR.

THERAPEUTICS.—Lectures, two hours a week.

PHARMACOLOGY.—Lectures, and recitations one hour a week for first half year and two hours a week for second half year.

Laboratory work, three hours a week for second half year.

GROSS PATHOLOGICAL ANATOMY.—Demonstrations, two hours a week.

OBSTETRICS.—Lectures, two hours a week.

PHYSICAL DIAGNOSIS.—Lecture, one hour a week.

MEDICINE.—Lectures, four hours a week.

Clinics, two hours a week.

SURGERY.—Lectures, two hours a week.

Clinics, six hours a week.

GYNECOLOGY.—Lectures, one hour a week.

DISEASES OF CHILDREN.—Clinics, one hour a week.

DISEASES OF NOSE, EAR AND THROAT.—Lectures, one hour a week.

GENITO-URINARY DISEASES.—Lectures, one hour a week, half the year.

Clinics, one hour a week, half the year.

APPLIED ANATOMY.—Lecture, one hour a week.

DISPENSARY AND GENERAL CLINICS.—As time permits.

FOURTH YEAR.

GROSS PATHOLOGICAL ANATOMY.—Demonstrations, two hours a week.

OBSTETRICS.—Lectures, two hours a week.

Clinics, as material permits.

MEDICINE.—Lectures, four hours a week.

Clinics, two hours a week.

SURGERY.—Lectures, two hours a week.

Clinics, six hours a week.

GYNECOLOGY.—Clinics, four hours a week.

PHYSICAL DIAGNOSIS.—Practice, two hours a week.

NEUROLOGY.—Clinics, one hour a week.

DERMATOLOGY.—Lectures, one hour a week, first half year.

Clinics, one hour a week, second half year.

OPHTHALMOLOGY.—Lecture, one hour a week, first half the year.

Dispensary practice, second half the year.

JURISPRUDENCE.—Lectures, one hour a week, first half the year.

PREVENTIVE MEDICINE.—Lectures and quizzes, one hour a week.

DISPENSARY AND HOSPITAL CLINICS.—Practice, as time permits.

BRANCHES OF STUDY—1899-1900.

FIRST YEAR.

Biology,	Anatomy,
Physics,	Materia Medica,
Chemistry,	Pharmacy,
Histology,	Bacteriology.

SECOND YEAR.

Physiology,	Pathology,
Anatomy,	Hygiene,
Pathological Histology,	Minor Surgery,
Therapeutics,	Applied Anatomy.

THIRD YEAR.

Pharmacology,	Surgery,
Therapeutics,	Medicine,
Pathology,	Obstetrics,
Gynæcology,	Pediatrics,
Genito-Urinary Diseases,	Medical Clinics,
Physical Diagnosis,	Surgical Clinics.

FOURTH YEAR.

Obstetrics,	Jurisprudence,
Dermatology,	Medicine,
Nervous Diseases,	Surgery,
Physical Diagnosis	Gynæcology,
Clinical Gynæcology,	Surgical Clinics,
Preventive Medicine,	Medical Clinics.
Ophthalmology,	

SCHEDULE OF SUBJECTS, DAYS AND HOURS,
1899-1900.

FIRST YEAR.

Monday—Chemistry, 8 to 9 a. m.

Histology, 9 to 11 a. m., first half-year.

Materia Medica, 10 to 11 a. m., second half-year.

Biology and Physics, 2:30 to 4:30 p. m., first half year.

Bacteriology, 1:30 to 4:30 p. m., March 1st to June.

- Tuesday*—Chemistry, 8 to 9 a. m.
Chemical Laboratory, 9 to 11 a. m.
Anatomy, 11 to 12 a. m.
Anatomical Demonstration or Dissections, 2 to 5 p. m.
- Wednesday*—Chemistry, 8 to 9 a. m.
Chemical Laboratory, 9 to 12 a. m., first half-year.
Pharmacy, 11 to 12 a. m., second half-year.
Bacteriology, 1:30 to 4:30 p. m., March 1st to June.
- Thursday*—Chemistry, 8 to 9 a. m.
Materia Medica, 10 to 11 a. m.
Anatomy, 11 to 12 a. m.
Dissections, 2 to 5 p. m.
Histology, Revision and Quiz, 1 to 4 p. m.
- Friday*—Chemistry, 8 to 9 a. m.
Histology, 9 to 12 a. m., first half-year.
Materia Medica, 10 to 11 a. m., second half-year.
Bacteriology, 1:30 to 4:30 p. m., March to June.
Dissections, 2 to 4 p. m., first half-year.
Anatomy, 4 to 5 p. m.
- Saturday*—Chemical Laboratory, 8 to 11 a. m.
Anatomy, 11 to 12 a. m.

SECOND YEAR.

- Monday*—Physiology, 8 to 9 a. m.
Therapeutics, 9 to 10 a. m.
Anatomy, 11 to 12 a. m.
Pathological Histology, 1:30 to 4:30 p. m., till March 1st.
- Tuesday*—Physiology, 8 to 9 a. m.
Pathology, 9 to 10 a. m.
Anatomy, 10 to 12 a. m.
Hygiene, 2 to 3 p. m.
Dissections, 7 to 9 p. m.
- Wednesday*—Physiological Laboratory, 8 to 12 a. m.
Pathological Histology, 1 to 4 p. m., till March 1st.
Minor Surgery, 4 to 5 p. m.
- Thursday*—Physiology, 8 to 9 a. m.
Therapeutics, 9 to 10 a. m.
Pathology, 10 to 11 a. m.
Anatomical Demonstration, 1 to 2 p. m.

Dissections, 2 to 5 p. m.

Applied Anatomy, 7 to 8 p. m.

Friday—Physiology, 8 to 9 a. m.

Pathological Histology, 1:30 to 4:30 p. m., till March 1st

Saturday—Physiological Laboratory, 8 to 11 a. m.

Anatomy, 11 to 12 a. m.

THIRD YEAR.

Monday—Pharmacology, 8 to 9 a. m.

Therapeutics, 9 to 10 a. m.

Obstetrics, 10 11 a. m.

Pathological Demonstration, 11 to 12 a. m.

Pharmacological Laboratory, 2 to 4 p. m.

Tuesday—Medical Clinic, 8 to 10 a. m., Lakeside Hospital.

Surgical Clinic, 10 to 12 a. m., Lakeside Hospital.

Wednesday—Medical Clinic, 8 to 10 a. m., Charity Hospital.

Surgical Clinic, 10 to 12 a. m., Charity Hospital.

Pediatrics, 2 to 3 p. m.

Thursday—Pharmacology, 8 to 9 a. m.

Therapeutics, 9 to 10 a. m.

Obstetrics, 10 to 11 a. m.

Pathological Demonstration, 11 to 12 a. m.

Medical Clinic, 1 to 3 p. m., Lakeside Hospital.

Applied Anatomy, 7 to 8 p. m.

Friday—Gynecology, 9 to 10 a. m.

Surgical Clinic, 10 to 12 a. m., Lakeside Hospital

Nose, Ear and Throat, 2 to 3 p. m.

Genito-Urinary, 3 to 4 p. m.

Physical Diagnosis, 4 to 5 p. m.

Saturday—Surgery, 8 to 10 a. m., Charity Hospital.

Medicine, 10 to 11 a. m., Charity Hospital.

FOURTH YEAR.

Monday—Obstetrics, 10 to 11 a. m.

Pathological Demonstration, 11 to 12 a. m.

Dermatology, 2 to 3 p. m.

Nervous Diseases, 3 to 4 p. m.

Physical Diagnosis, 4 to 5 p. m.

Tuesday—Medical Clinic, 8 to 10 a. m., Lakeside Hospital.

Surgical Clinic, 10 to 12 a. m., Lakeside Hospital.

Wednesday—Medical Clinic, 8 to 10 a. m., Charity Hospital.

Surgical Clinic, 10 to 12 a. m., Charity Hospital.

Physical Diagnosis, 4 to 5 p. m.

Thursday—Gynecological Clinic, 8 to 10 a. m.

Obstetrics, 10 to 11 a. m.

Pathological Demonstration, 11 to 12 a. m.

Medical Clinic, 2 to 3 p. m., Lakeside Hospital.

Preventive Medicine, 4 to 5 p. m.

Friday—Jurisprudence, 8 to 9 a. m., one half-year.

Surgical Clinic, 10 to 12 a. m., Lakeside Hospital.

Ophthalmology, 3 to 4 p. m.

Saturday—Surgery, 8 to 10 a. m., Charity Hospital.

Medicine, 10 to 11 a. m., Charity Hospital.

Gynecology, 11 to 12:30 a. m., Charity Hospital.

City Hospital Clinics, 2 to 5 p. m., till June 1st.

No sections to be detailed to hospitals or dispensaries in hours conflicting with schedule.

EXAMINATION FOR ADMISSION.

1898-99.

EXAMINATION IN PHYSICS.

1. Define Force; explain its measurement.
2. Define the foot-pound, explaining all terms used in the definition.
3. Explain the method of determining specific gravity with the balance.
4. Define Energy; state the relation existing between Heat and Energy.
5. Define the thermal capacity of a body, and state the unit in which it is measured.
6. Explain the formation of an optical image by a small aperture.
7. Describe the action of an electric current in a wire upon a magnetic needle near it. State the effect upon the current if the magnet be moved with the hand.

8. Describe any form of galvanometer, and state its use in measuring electric currents.

GERMAN.

1. Translate into English the passage marked in "Germel-shaufen" by Friedrich Gerstäcker.

[The passages consist in all of about forty lines.]

2. Inflect the words underscored. In the case of nouns, adjectives and pronouns give the whole of the singular and plural. In verbs give the principal parts and conjugate in full the tense in which the word underscored is found.

GEOMETRY.

1. If two angles of a triangle be equal to one another, the sides also, which subtend or are opposite to the equal angles, shall be equal to one another.

2. If a straight line, drawn through the centre of a circle, bisect a chord of the circle, which does not pass through the centre, it must cut it at right angles; and conversely, if it cut it at right angles, it must bisect it.

Deduction. A line which bisects two parallel chords in a circle is also perpendicular to them.

3. To describe a square that shall be equal to a given rectilineal figure.

ENGLISH.

1. Write a short essay of not less than 300 words on one of the following subjects: The War with Spain The Battle of Gettysburg.

2. Write the passage dictated to you. Attend carefully to spelling and punctuation. [The passage was taken from the Autocrat of the Breakfast Table.]

3. Correct, if necessary, the following sentences, pointing out clearly wherein the error lies, if any be present:

(a) It is all the same to you and I.

(b) Either the Dean or the Secretary are certain to be at home.

(c) Walking down the street, a tree attracted my attention, stripped and bare, although not yet much beyond the middle of July.

(d) Quite exceptional to the general rule, a man who tries to know other people's business may know his own, too.

4. Give the plurals of hoof, index, phenomenon, chimpanzee, datum.

LATIN.

(1897).

1. Translate literally: Cæsar, "De Bello Gallico," Book I, Chap. 9, 1-9.

Relinquebatur una per Sequanos via qua Sequanis invitis propter angustias ire non poterant. His cum sua sponte persuadere non possent, legatos ad Dumnorigem aeduum mittunt, ut eo deprecatore a Sequanis impetrarent. Dumnorix gratia et largitione apud Sequanos plurimum poterat, et Helvetiis erat amicus, quod ex ea civitate Orgetorigis filiam in matrimonium duxerat, et cupiditate regni adductus novis rebus studebat, et quam plurimas civitates suo beneficio hebere obstrictas rolebat.

2. Decline: hic, haec, hoc. Conjugate *impero*, "command" and *tego*, "cover," in the Indicative present and perfect, active and passive.

3. Give the English derivatives of the Latin words in the first five lines of (1).

4. Translate: Cæsar, I, 34, lines 1 to 5. Quam ob rem placuit ei ut ad Ariovistum legatos mitteret, qui ab eo pastularent, uti aliquem locum medium utriusque colloquio deligeret; velle sese de re publica et summis utrisque rebus cum eo agere. Ei legatione ariovistus respondit.

5. (a) Cæsar was informed by scouts (explorator) that the Germans had crossed the Rhine.

(b) Labienus led two legions into winter quarters.

(c) In the consulship of Gn. Pompeius and M. Crassus, Cæsar waged war in Gaul.

(d) The soldiers took the city by storm. [Took-by-storm, translate by one word.]

(e) The army hastened by forced marches to the Nervii.

CLASS EXAMINATIONS, 1897-98.

FIRST YEAR CHEMISTRY.

1. What is Chemistry? Into what branches is it divided? Explain each division.
2. What are acids, bases and salts? Quantivalence or valence?
3. How many litres of hydrogen will it take to reduce 100 gr. of Pb_3O_4 assuming that all the lead is reduced to the metallic state and that the hydrogen is measured at $20^\circ C$ and 790 m.m. pressure?
4. What elements constitute the Halogen groups and describe each of them.
5. How is sulphuric acid made and describe the acid?
6. What are the oxygen compounds of nitrogen? Describe each and give their methods of preparation.
7. Give the general scheme for separating the elements into their analytical groups, and give the elements belonging to each group.
8. Give a synopsis of the method of procedure in the case of arsenical poisoning.
9. What is phosphorus; how prepared, and what are some of its more important compounds?
10. Give the quantivalence and atomic weight of the following: Ca. Aj. Fe. K. Cd. Hg. As. Al. Pb. Bi. N. Sn. Ba. Br. Mg. NaLi.

SECOND YEAR CHEMISTRY.

FINAL 1898.

1. Classification of the carbohydrates and example of each.
2. (a) What is aniline and give the methods of its manufacture?
(b) What is benzoic acid and how can it be prepared?
(c) Give the paraffine series of hydrocarbons.
3. What is benzole, naphthaline and anthracine?
4. What is acetic acid and how can it be prepared from metham?
5. What is urea, uric acid and murexide?
6. What are the animal fats?
7. What is chloroform and how is it prepared?
What is alcohol and how is it prepared?
8. What are acids, amines, alcohols, aldehyde, ketones, ethers, esters and phenoles?

9. What is the simplest formula for a compound which analyses

$$C = 20.00 \% \quad H = 6.68 \% \quad N = 46.66 \%$$

$$O = 26.66 \%$$

10. What are butyric, lactic, malic and tartaric acids?

HISTOLOGY.

WRITTEN AND PRACTICAL EXAMINATIONS.

FRIDAY, JAN. 28, 1898, 9 A. M. TO 12 M.

1. Stain, mount, identify, draw and describe as fully as possible the sections labeled A, B, C, D. [The unstained sections were lung, cerebellum, skin, bone.]

2. Identify the stained and mounted specimens 1 to 10. [These were: 1, Suprarenal capsule; 2, ovary; 3, uterus; 4, large intestine; 5, spleen; 6, epiglottis; 7, transverse section of nerve; 8, cornea; 9, mucous gland; 10, lymph gland.]

FIRST YEAR PHYSIOLOGY.

PRACTICAL EXAMINATION.

FIRST HALF OF CLASS, SATURDAY, MAY 7, 1898, 8:30 TO 11 A.M.

SECOND HALF OF CLASS, SATURDAY, MAY 7, 2 TO 4:30 P M.

Two of the following experiments were assigned to each student after entering the examination room.

1. Determine the nature of the coloring matter in solutions A, B, and C.

[First half of class: A, oxyhæmoglobin; B, acid hæmatin; C, hæmochromogen. Second half of class: A, carbonic oxide hæmoglobin; B, methæmoglobin; C, acid hæmatin.] Two solutions were supplied to each student.

2. Obtain by two methods a non-coagulable plasma from the animal provided. Demonstrate the rôle of lime-salts in coagulation.

3. Estimate the ratio of hæmoglobin in solutions E. and F.

[First half of class: E : F :: 1 : 2. Second half of class: E : F :: 1 : 3.]

4. Estimate the specific gravity of the small sample of blood provided.

[First half of class: Specific gravity was 1.035. Second half of class: 1.020.]

5. Take a tracing from a frog's heart.

6. Take a tracing to show the effect of the vagus on a frog's heart.

7. Take tracings showing the effect on the respiratory movements in the animal provided, of stimulation of the vagus and sciatic, of section of both vagi and of asphyxia.

8. Take tracings to show the effect on the blood-pressure of stimulation of the vagus (peripheral and central end) and of the central end of the sciatic nerve, and of division of both vagi.

9. Demonstrate the effects of stimulation and division of the cervical sympathetic on the animal provided.

10. Demonstrate a method of estimating CO_2 and O in expired air.

11. Determine what, if any, proteids or carbohydrates are present in solution G. (G contained acid albumin and glucose.)

SECOND YEAR PHYSIOLOGY.

PRACTICAL EXAMINATION.

FIRST HALF OF CLASS, WEDNESDAY, MAY 11, 1898, 8:30 to 11:30 A. M.

SECOND HALF OF CLASS, WEDNESDAY, MAY 11, 1898, 2 TO 5 P. M.

Three of the following experiments were assigned to each student after entering the examination room. The candidate is supplied only with such apparatus or reagents as he may ask for.

1. Take tracing to show the effects of injection of suprarenal extract upon the blood-pressure, before and after section of both vagi.

2. Take tracings to show the effect of the temperature of the blood upon the respiratory center.

3. Determine the pulmonary circulation-time of the animal provided.

4. Demonstrate the cardiac depressor nerve.

5. Take tracings from a frog's heart. Demonstrate the action of the vagus.

6. Determine what, if any, abnormal substances are present in urines A, B, C, O, P and Q.

[A, proteids and blood; B and O, bile pigments, urine and proteids; C and Q, sugar; P, proteid, blood and sugar.]
(Two urines were given to each student.)

7. Determine the nature of the urinary sediments D, E, F, R, S and T.

[D and S, epithelium, calcium oxalate and granular casts; E and R, triple and amorphous phosphates; F and T, blood.] (Two sediments were given to each student.)

8. In urine L or Y determine whether any abnormal substance is present, and if so estimate the amount. (Glucose in L, 0.4%; Y, 0.2%.)

9. In solution M or Z estimate the glucose by two methods. (M polarimeter 3.2%, Fehling's 2.38%; Z polarimeter 1.6%, Fehling's 1.19%.)

10. Make a quantitative determination of phosphoric acid in urines N or A'. (In N there was 1.4 gm $P^2 O^5$ per 1000 c.c.; in A' 0.7 gm $P^2 O^5$ per 1000 c.c.)

11. Determine what, if any, digestive ferments are present in solutions I and K or W and X. (I and X were gastric juice; K, pancreatic juice; W, Saliva)

12. Determine what, if any, products of digestion are present in solution G and H or U and V. (G was proteose; H, dextrin and glucose; U, alkali-albumin and proteose; V, dextrin, glucose and proteose.)

13. Demonstrate the effects produced on a frog by excision of the cerebral hemispheres.

14. Demonstrate a method of estimating the "reflex time." Also a method of inhibiting reflexes.

PHYSIOLOGY.

WRITTEN EXAMINATION, FIRST YEAR CLASS.

WEDNESDAY, MAY 9, 1898, 9 TO 11 A. M.

1. Describe fully a method of estimating the number of red corpuscles in a given volume of blood. What is the normal number in a cub. mm? Within what limits may it vary in health?

2. Describe a method of taking a pulse tracing. Discuss the causation of the various elevations on it.

3. Describe in detail the changes that take place in the blood as it passes through the lungs. What evidence is there that the lungs "secrete" gases?

WRITTEN EXAMINATION, SECOND YEAR CLASS.

FRIDAY, MAY 13, 1898, 9 A. M. TO 12 M.

1. Describe fully the nervous mechanism which controls the respiratory movements.
 2. Give as complete an account as you can of the chief theories of urinary secretion. State clearly the main facts in favor of each.
 3. Where is glycogen found in the body? From what food-substances may it be derived? What is its fate? Give the evidence for your statements as fully as you can.
 4. What are the main connections of the cerebellum with the other parts of the central nervous system? What functions have been assigned to the cerebellum? Discuss the evidence.
 5. Discuss the evidence as to the place of decussation of the motor and sensory impulses in the central nervous system. What is crossed paralysis? Where would you localise the lesion in a typical case?
 6. What is myopia, hypermetropia, presbyopia, astigmatism? On what conditions do these defects of vision most commonly depend? How can they be remedied?
- Use drawings to illustrate your answers.

BACTERIOLOGY.

1. What are bacteria? Classify them morphologically.
2. Describe all the methods of disinfection in common use in the laboratory.
3. Give the principal morphological and cultural characters of two members of the group *Bacillus mucosus capsulatus*.
4. Describe the diphtheria culture test and give a full description of the morphological and cultural characters of the *Bacillus diphtheriæ*.
5. In what situations and under what conditions are *Aspergilli* found in the human body? Describe the growth of *Aspergillus Niger* on gelatin and on potato. State the points of difference between *Aspergillus Niger* and *Aspergillus fumigatus*.
6. Describe the cultural characteristics of *Sanfelice's blastomyces* pathogenic for guinea pigs.
7. Which of the following bacteria cause fermentation in glucose bouillon: *B. coli communis*, *B. diphtheriæ*, *B. mucosus capsulatus*, *B. proteus vulgaris*, *B. typhosus*?

8. Name two bacilli which grow invisibly on gelatin. Name all the organisms studied by you which liquify gelatin.

9. Describe a good method for staining the bacillus tuberculosis.

NOTE.—Each student is required to record his laboratory observations in a specially arranged note-book, which is critically examined at the course. The student's grade is determined in large part by the character of his laboratory work.

PATHOLOGICAL HISTOLOGY.

At a written examination in this course each student was given his choice of three of six unlabelled sections, ready stained and mounted. These sections were (1) acute croupous pneumonia (grey Hepatization). (2) chronic parenchymatous nephritis. (3) chronic interstitial nephritis. (4) acute miliary tuberculosis of the liver. (5) carcinoma of breast. (6) epithelioma of lip.

The student is required to write out an accurate, detailed description of the appearance in each of his three chosen specimens, to trace the various steps in the processes described, and finally to record his diagnosis. Each student is required to hand in with his examination paper a set of drawings illustrating all the lessons studied in the course.

ANATOMY.

Examinations in Anatomy are oral.

GENERAL PATHOLOGY.

An oral examination. The questions included the following subjects: The general principles of pathology, the etiology of infectious and non-infectious diseases, the portals of entrance of micro-organisms into the body, the bacterial flora of the body, the bacteria of wound infection, immunity, antitoxins, the etiology and pathological anatomy of typhoid fever, tuberculosis, diphtheria, syphilis, pneumonia, nephritis, arterio-sclerosis, the pathology of the circulation, etc.

MEDICINE.

1. Cardiac insufficiency. Give clinical description, relation of symptoms, and treatment.

2. Given a young adult, second day of illness after preceding malaise, and slight constipation; having had a chill, temperature

101 $\frac{5}{10}$ F.; severe headache, backache, cough; tongue heavily coated; sleeplessness. Typhoid fever suggested. What other possible infections would you consider, and for what further evidence would you seek to make diagnosis?

3. Acute nephritis. Give clinical description and diagnosis. How does it tend toward death? Outline treatment of patient affected with it.

SURGERY.

1. (a) What is an incised wound?
(b) What is a lacerated wound?
(c) Give treatment?
2. (a) What are the predisposing causes of fracture?
(b) What are exciting causes of fracture?
(c) Prognosis and treatment of fracture of shaft of femur.
3. (a) Give indications for treatment of fractures.
(b) Give treatment of delayed union.
4. Strangulated hernia. Symptoms, treatment and indications for operation. Describe Bassini's operation for radical cure of hernia.
5. Give indications and contra-indications for use of chloroform and ether.
6. Diagnosticate between solid tumors, cystic tumors and free fluid in the abdominal cavity.
7. Tumors of the testicle. Name the different varieties and give the differential diagnosis and treatment of one variety.
8. Hemorrhoids. Their causes and treatment both non-operative and operative.
9. What surgical conditions may cause the presence of pus in the urine?

OBSTETRICS.

1. Describe the placenta and give its (a) development, and (b) functions.
2. Give the foetal circulation.
3. Define the axis of the true pelvis and give a description of the same.
4. Give the differential diagnosis of pregnancy from (a) ovarian tumors; (b) fibroid tumors; (c) ascites; (d) pseudocyesis.
5. Give the phenomena of the second stage of labor and the management of the third stage.

6. Give the mechanism of R. O. P. positions.
7. Give the treatment of face cases (*a*) in mento-anterior positions; (*b*) mento-posterior positions.
8. Give the diagnosis and treatment of placenta praevia.
9. Give the preventive treatment of puerperal infection in private practice.

GYNECOLOGY.

1. What variations in the position of the uterus are to be regarded as within physiological limits?
2. In examination, what principal advantages are gained by anesthesia?
3. Give the indications for and describe the technique to be observed in the use of the uterine sound.
4. For what diseased conditions should the curette be used, and give the technique to be observed?
5. Define retroversion and retroflexion of the uterus, and give the differential signs and symptoms of each?
6. Give the chief causes of pyosalpinx and hematosalpinx, with indications for and methods of treatment?
7. Give signs of tubal pregnancy and indications for treatment in all stages?
8. What are the principal signs of malignant disease of the body of the uterus?
9. For what conditions should oöphorectomy be advised and performed?
10. For what conditions should hysterectomy be advised and performed?

OPHTHALMOLOGY.

1. Describe the retina and name the diseases to which it is subject.
2. Name the varieties of keratitis, and give treatment for interstitial keratitis.
3. Give the differential diagnosis between conjunctivitis and iritis, also between acute iritis and acute glaucoma.
4. How would you determine the presence of a foreign body in the vitreous chamber, and what methods should be employed in its removal?
5. Define astigmatism. Give the varieties and by what means it may be corrected.

DISEASES OF NOSE, THROAT AND EAR.

1. Describe the condition present in the nose in chronic hypertrophic rhinitis (*a*) in a mild case; (*b*) in a severe case. Give the symptoms and treatment in each case.

2. Describe the most common manifestation of syphilis in the nose in an adult; the symptoms and treatment.

3. Give the etiology, pathology symptoms and treatment of otitis media acuta.

PHYSICAL DIAGNOSIS.

Examinations in Physical Diagnosis are oral and clinical.

NEUROLOGY.

1. Describe a neuron.

2. Give the causes of locomotor ataxia.

3. What are the symptoms of hysteria?

4. How do you treat apoplexy?

PREVENTIVE MEDICINE.

1. State the principal dangers to health from overcrowding in dwelling houses?

2. Give the principles to be applied, in efforts to prevent the spread of a dangerous infectious disease?

3. Specify in detail, the duty of a physician to the infected and the non-infected, in a community, when he has knowledge of the presence of a dangerous infectious disease?

4. What constitutes a true immunity from disease?

5. Give methods of disinfection of the person, the clothing, the bedding, the dwelling place, the excreta.

EXAMINATIONS, 1899.

FIRST YEAR CLASS.

Physics—Monday, January 23d.

Biology—Monday, January 30th.

Histology—Friday, February 10th, 9 a. m.

(Supplementary)—Friday, May 29th, 9 a. m.

Osteology—Tuesday, May 23d.

Chemistry—Wednesday, May 24th.

Pharmacy—Thursday, May 25th.

Bacteriology—Tuesday, June 6th.

Materia Medica—Thursday, June 8th.

SECOND YEAR CLASS.

Pathological Histology—Monday, February 27th.

Anatomy—Wednesday, May 24th.

Physiology—Practical Examination, Wednesday, May 31st, 8:30 to 11:30 a. m.

Written and Oral, Friday, June 2d, 9 a. m.

Hygiene—Tuesday, June 6th.

Minor Surgery—Thursday, June 8th.

Therapeutics—Friday, June 9th.

THIRD YEAR CLASS.

Therapeutics—Monday, May 29th.

Diseases of Children—Wednesday, May 31st.

Pharmacology—Thursday, June 1st.

Genito-Urinary Diseases—Friday, June 2d.

Obstetrics—Monday, June 5th.

Medicine—Tuesday, June 6th.

Surgery—Wednesday, June 7th.

Pathology—Thursday, June 8th.

Physical Diagnosis—Friday, June 9th.

Gynecology—Friday, June 9th.

Anatomy—Monday, June 11th.

FOURTH YEAR CLASS.

Neurology—Monday, May 22d.

Gross Pathology—Thursday, May 25th.

Obstetrics—Monday, May 29th.

(a) *Surgery*—Tuesday, May 30th.

Physical Diagnosis—Wednesday, May 31st.

(a) *Gynecology*—Thursday, June 1st.

Ophthalmology—Friday, June 2d.

(a) *Medicine*—Saturday, June 3d.

(b) *Gynecology*—Saturday, June 3d.

Dermatology—Monday, June 5th.

(b) *Surgery*—Wednesday, June 7th.

(b) *Medicine*—Thursday, June 8th.

Jurisprudence—Friday, June 9th.

Preventive Medicine—Friday, June 9th.

(a) Drs. Allen, Robb, Sawyer. (b) Bunts, Lowman, Humiston.

EXAMINATIONS, 1900.

FIRST YEAR CLASS.

Histology—Friday, February 9th.

(Supplementary)—Friday, May 25th.

SECOND YEAR CLASS.

Physiology—Practical Examination, Wednesday, June 6th.

Written and Oral, Friday, June 8th.

Physics—Monday, January 22d.

Biology—Monday, January 29th.

REQUIREMENTS FOR GRADUATION.

1. All candidates for the degree of Doctor of Medicine must have satisfactorily completed four years of medical study, the first three of which may have been spent either in this college or in schools whose courses are accepted by the faculty. The fourth year course must be taken and the final examination passed in this college. Candidates from other schools may be further examined at the discretion of the faculty, in any or all of the branches of study included in the first three years of the curriculum of this college.

2. Every candidate for graduation must present satisfactory evidence of good moral character and of being not less than twenty-one years of age.

Any candidate for graduation failing in two or more branches at the final examination, will not again be examined until the final examinations of the succeeding year.

But if a candidate is deficient in one subject only he may be re-examined in that subject after an interval of not less than four months.

FEEES.

The fees are \$125 a year, including tuition and all laboratory expenses, except the price of anatomical material and breakage. This amount is due before October 20th of each year, although students who prefer may pay \$75 by October 20th and \$55 by March 15th of the college year.

No student shall be permitted to present himself for examination who has not paid all dues and liabilities in full. Students who wish to pay for the entire four years' course by Oct. 20th, of their first year, will be allowed a reduction of \$50 on the whole amount. A deposit of \$10.00 is required from the students of the first and second years at the outset in addition to the tuition fee, to cover breakage in laboratories, etc. The unused balance of this deposit is returned at the end of the session.

SITUATION OF BUILDING.

The *College Building* stands at the corner of Erie and St. Clair streets, about five minutes' walk from the centre of the city.

Lakeside Hospital fronts on Lake street, corner of Muirson—five minutes' walk from the college. *Charity Hospital* fronts on Perry street, corner of Central avenue. *Home of Maternity* is in the rear of "Charity" on Marion street. The *City Hospital* stands fronting Scranton avenue and is reached by either Jennings avenue or Pearl street and Brooklyn cars.

COST OF LIVING.

Good board can be secured at from \$3.00 to \$5.00 a week ; and furnished rooms from \$5.00 to \$10.00 a month. By forming "clubs" students are able to bring their living expenses considerably below these prices. The janitor at the college building keeps a list of boarding places for the convenience of students. The Case Library, Public Library and Hatch Library offer more than 200,000 volumes in all departments of literature and science, all of which are accessible to the students of this college. By an arrangement with Goodrich House, which stands within one block of the college, a gymnasium, with bathing accommodations, is available to the students at a very small cost. At the Y. M. C. A. building (which is near) similar opportunities are afforded.

MEDICAL COLLEGE.

STUDENTS, 1898-99.

GRADUATES.

Beebe, Pearl A.,
Carlisle, Chester L.,
Cozad, Henry Irving, A. B.,
Cudell, Adolph,
Culp, Clyde S.,
Dial, Emory L., A. B.,
Dickerson, Egbert S.,
Doolittle, William F.,
Hall, H. Melville,
Hard, Harrie H.,
Heinig, Emil J.,
Held, Charles E.,
Hill, Corwin T.,
Hobson, Willis S., A. B.,
Hoffman, Gideon, H.,
Hole, Charles M.,
Jaster, Cyrus,
Little, J. Melvin,

Lueke, Ernest H.,
Manchester, William C.,
McComb, Edwin C.,
Merriam, Walter H., M. D.,
Michel, Gustav H.,
Norrell, John W.,
Osborn, William O., M. D.,
Phillips, William W., A. B.,
Powell, Otho J., B. S.,
Rummel, Edwin G.,
Schmoltdt, Frederick J.,
Season, Edwin H.,
Seids, John W.,
Stern, Walter G., A. B.,
Sunkle, Robert H., A. M.,
Thomas, William J.,
Wood William H.,
Woolgar William J. W.,

FOURTH YEAR.

Goodman, Guy T.	Mansfield.	Taylor, Arthur C.	East Cleveland.
Heidler, George K.	McCleary, Pa.	Tetlow, Herbert, A. B.	Westerly, R. I.
Liles, Lester, McK.	Collins.	Tidd, Charles C.	Clark, Pa.
Rhu, Herman S.	Marion.		

THIRD YEAR.

Bailey, David T.	Telluride, Col.	Jones, Sidney, A. B.	Cleveland.
Banker, David F.	Canton.	Knowlton, Louis G.	Cleveland.
Bell, Clinton H.	Cleveland.	Lynn, Frederick M.	Cleveland.
Chamberlin, William B., A. B.	Shelby.	Lyon, William D.	Cleveland.
Cowley, Robert H., A. B.	Lorain.	McElhany, B. B.	Cleveland.
Craig, Chalmers.	East Cleveland.	Medlin, Wenzel A.	Cleveland.
Cunningham, A. T. R., A. B.	Cleveland.	Metz, Roy B.	Cleveland.
Darby, John C., A. B.	Cleveland.	Miller, Howard C.	Youngstown.
Dunn, Joseph J.	Cleveland.	Peskind, Samuel.	Cleveland.
Eberhard, LeRoy C., A. B.	Akron.	Phillips, Wm. H., A. B.	Greenville, Pa.
Gill, William C., A. B.	Cleveland.	Simpson, Ferdinand H.	Akron.
Green, William L.	Memphis, Ind.	Spreng, William.	Cleveland.
Hannum, B. G.	Toledo.	Suchy, F. H.	Cleveland.
Harding, George W., A. B.	Cleveland.	Weeks, Edmund A.	Akron.
Henderson, George D., Jr.	Cleveland.	Wheelock, Lincoln A.	Cleveland.
Houck, Eugene O.	Cleveland.	Williams, Chas. D., Ph.G.	Goodrich, Ont.
Jenkins, Henry E.	Cleveland.	Williams, William H.	Cleveland.
Jennings, Curtis H.	Springfield, Mass.	Yü T. Robert.	Shanghai, China.

SECOND YEAR.

Akins, Earl E.	Cleveland.	Ickes, Edgar M., A. B.	Fremont.
Austin, George S.	Painesville.	Ikert, Frank H.	East Liverpool.
Baldwin, William S.	Cleveland.	Ludlow, A. Irving A. B.	Cleveland.
Bill, Arthur H., A. M.	Cleveland.	Mabry, William C., A. B.	Cleveland.
Brown, Arthur E.	Greenville, Pa.	McConnell, John T.	Cleveland.
Cadwalader, John S.	Warren.	Metz, J. Arthur.	East Liverpool.
Carlisle, Paul.	Mt. Gilead.	Peppard, David W.	Crestline.
Clark, William T.	Jamestown, Pa.	Richardson, William H.	Lisbon.
Cline, Austin W.	Hawleyton, N. Y.	Stackpole, Robert L.	Venango, Pa.
Dickenson, John Jr.	Cleveland.	Stall, Arthur H.	Barberton.
Englander, Simon.	Cleveland.	Vasey, Charles F.	Salineville.
Graver, Joseph G.	Cleveland.	Wean, Clarence B.	Cleveland.
Gatrell, Thomas J. H., M. D.	Oberlin.	Wehr, Charles, A. B.	Cleveland.
Hay, Charles H.	Seville.	Zintsmaster, Logan B.	Navarre
Hoover, Charles S.	Alliance.		

FIRST YEAR.

Austin, Jacob B.....	Cleveland.	Lensman, Arthur P	Cleveland.
Buck, Brady B.....	Cleveland.	Lindsay, John F.....	Salineville.
Carpenter, Mars W.....	Temple.	Manchester, Frank S.....	Canton.
Cobb, Percy W.....	Cleveland.	Manning, William J.....	Cleveland.
Corlett, Chris E.....	Cleveland.	Mohr, John.....	Cleveland.
Defenbacher, Frederick J.....	Canal Dover.	Park, William C.....	Grafton.
Ellsworth, William Q	Cleveland.	Philen, John R.....	Cleveland.
Garver, Charles V.....	Wooster.	Pitken, Charles E	Brunswick.
Haldy, Walter E.....	Cleveland.	Schultz, William H.....	Berea.
Hathaway, James J.....	Cleveland.	Selby, Clarence D.....	Portsmouth.
Hug, J. A.....	Cleveland.	Sherbondy, James A.....	Jamestown, Pa.
Hunt, Jessie E.....	Cleveland.	Southwick, P. F.....	Madison.
Hurley, C. E.....	Cleveland.	Storey, Alvin S.....	Cleveland.
Jackson, Foster W.....	Cleveland.	Taylor, Thomas J.....	Cleveland.
Kakes, Vaclav	Cleveland.	Tressel, John K.....	Alliance.
Klaus, Emanuel.....	Cleveland.	Vacha, Frank H.....	Cleveland.
Klaus, Max H.....	Cleveland.	Weber, John H.....	Cleveland.
Lane, Claude W.....	Kenilworth.	Yohamon, David.....	Persia.

ALUMNI ASSOCIATION.

All graduates of the Medical College of Western Reserve University and of Cleveland Medical College are invited to meet in the College Building, Wednesday, June 14, 1899. It is arranged to devote the day to lectures, clinics and laboratory demonstrations, with a formal meeting and lunch in the College Building during the evening. Further notice and program will be sent to the alumni.

G. C. ASHMUN, *Secretary.*

DENTAL COLLEGE

—OF—

Western Reserve University,

262 Prospect St., CLEVELAND, O.

NEW BUILDING.

EXCELLENT CLINIC



FACULTY.

CHARLES FRANKLIN THWING, D. D., LL. D., 55 Bellflower Ave., *President.*

HENRY M. AMBLER M. S., D. D. S., M. D., DEAN, 176 Euclid Ave.
Professor of Operative Dentistry and Dental Hygiene.

WILL H. WHITSLAR, M. D., D. D. S., SECRETARY OF FACULTY, 29 Euclid Ave.
Professor of Dental Anatomy and Pathology.

GEORGE H. WILSON, D. D. S., 44 Euclid Ave.
Professor of Prosthesis and Metallurgy.

JOHN F. STEPHAN, D. D. S., 29 Euclid Ave.
Professor of Operative Technics.

CARL A. HAMANN, M. D., 282 Prospect Street.
Professor of Anatomy.

GEORGE NEIL STEWART, M. A., D. Sc. M. D. P. H. (Cantab), Medical College.
Professor of Physiology and Histology.

WILLIAM T. HOWARD, JR., A. B., M. D., Medical College.
Professor of Bacteriology.

LOUIS PRENTISS BETHEL, M. D., D. D. S., Kent, Ohio.
Assistant in Bacteriology.

CALVIN S. CASE, D. D. S., Chiago, Ill.
Professor of Orthodontia.

JOHN RALPH OWENS, D. D. S., 29 Euclid Ave.
Anæsthetics.

JOHN WILLIAM VAN DOORN, D. D. S., 455 The Arcade.
Professor of Materia Medica and Dental Therapeutics.

HARRY AUGUSTUS GARFIELD, Garfield Building.
Dental Jurisprudence.

CHARLES E. HURD, D. D.,
Demonstrator.

WILLIAM G. EBERSOLE, M. D., D. D. S.
Demonstrator.

WESTON A. PRICE, D. D. S., M. E.
Electro Therapeutics.

PROFESSOR WHITSLAR,
Superintendent of Operative Clinics.

PROFESSOR WILSON,
Superintendent of Prosthetic Clinics.

SEND FOR A CATALOGUE.

Address the Secretary,

W. H. WHITSLAR, M. D., D. D. S.,

29 EUCLID AVE., CLEVELAND, O



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Western Reserve University,

CLEVELAND, O.

ADELBERT COLLEGE.

THE COLLEGE FOR WOMEN.

THE GRADUATE SCHOOL.

THE MEDICAL SCHOOL.

THE LAW SCHOOL.

THE DENTAL SCHOOL.

WESTERN RESERVE ACADEMY.